

Community Health Insurance Scheme as a viable option for rural population in Nigeria

Paper submitted to the Centre for the Study of African Economies (CSAE)
Department of Economics, University of Oxford

By

Ataguba, John E

johnataguba@yahoo.co.uk

Health Economics Unit, University of Cape Town and
Department of Economics, University of Nigeria, Nsukka

February 2008

Abstract

The challenges of development in Africa are enormous. While the population still strive to tackle the problem of widespread poverty, the issue of health care payments for the poor has remained largely a problem in most parts of Africa. In Nigeria, the case is no different. In most parts of Africa, health care payments still remain out-of-pocket payments or payment at the point of utilization. The poor who are constrained by their level of earnings and the nature of lifestyle cannot afford to make such payments at the point of utilization. The paper in this regard examines the option of using community based insurance schemes for rural communities in Nigeria as an option to safeguard them from the high cost of health care through out-of-pocket expenditure. It proposed the use of in-kind payments in the form of agricultural commodities. Specifically, the contingent valuation methodology was employed to value the willingness of households in rural communities to pay for community health insurance scheme. The results show that rural communities are very willing to participate and to pay for the scheme that is aimed at reducing the unpredictability in 'forced' out-of-pocket health care payments. Since the rural poor do not have access to formal insurance schemes, these community contributory schemes are likely to be a start-off. Funds can be pooled together when the households can afford payments then payment for health care services will become relatively predictable.

Keywords: Poverty, Willingness to pay; community health insurance

JEL classification: I10, I18, I38, D11.

I Introduction

Poverty, inequality and growth are central themes of discourse in developing countries. Governments of these countries have sought for ways to help alleviate the sufferings of the poor within their country through developmental initiatives. In Nigeria for example, several initiatives and schemes have been introduced with successive governments specifically focusing on the poor. These include the family economic advancement programme, small scale credit schemes, operation feed the nation, better life for rural dwellers, family support programme, national poverty eradication programme, national health insurance scheme, and so on. However, the successes of these initiatives and schemes have not been fully felt by the poor. Specifically, access to affordable social services and health care services for the poor still remain a big challenge that has not been fully resolved. While the rich in urban areas of the country have access to quality health care services, the poor in the rural areas are largely deprived access to quality health care services. Infrastructures in these rural areas are also poor and a large proportion of about 65% of the population live in these rural areas where the standard of living is poor.

The challenges of development for the country are, therefore, enormous. While the population still strive to tackle the problem of widespread poverty, the issue of health care payments for the poor has remained largely a problem in most parts of Africa including Nigeria. In the mid 1980s Nigeria, like other developing countries in Africa was caught up in the web of reforms in the health and social services sectors that saw to the adoption of the user fees for health care financing in public health systems which moved the country from a state dependent to mainly market oriented structure. While this may be important in promoting health and economic performance, it only succeeded in shifting dominance of economic power into the hands of the elitist members of the society making access to health care purely a function of ability to pay. While the World Bank in the 1990s is deemphasising the use of the user fees system and promoting the use of risk-sharing arrangements for health care financing which makes health care payments predictable especially for the rural poor (World Bank, 1987; Bitran & Giedion, 2002; Dror & Preker, 2002), Nigeria still lacks these structures thereby creating huge inequalities and inequities in access to health care services in favour of the rich and wealthy.

The poor rural dwellers in Nigeria suffer the burden of out-of-pocket payments because of their low ability to pay and the high disease burden and the higher opportunity and financial cost created in accessing health care services. This further leads to poorer health status. An inverse relationship exists between lack of access to health insurance and health status (Whitehead et al., 2001; OECD/WHO, 2003) which makes the poor get poorer.

The study fundamentally seeks to employ the methodology of contingent valuation to investigate the willingness of rural households to prepay for health care services in rural Nsukka through the use of in-kind payments (commodities). The paper also identifies factors that determine the amounts households are willing to pay from data generated from a field survey of households in Nsukka in 2005

II Health Care Payments in Nigeria in Brief

The various sources of health care financing in Nigeria include budgetary allocations from the government at all levels of the federalism structure (local government, state, and federal); loans and grants obtained from multilateral and bilateral agencies in the form of international aid; and private sector contributions including out-of-pocket payment (WHO, 2002). Table 1 provides a summary of the shares of the various financing sources. It shows that private sector financing made up largely of out-of-pocket payments is the dominant. Government funding on health has declined steadily. This

has directed policy attention to consideration of issues related to health care financing in the country. Donor funding (external resources on health) in the health sector has also declined.

	Total Health expenditure as a fraction of GDP	Government expenditure as a percentage of total health expenditure	Private sector expenditure on health as a % of total health expenditure	Private households' OOP* as a % of private sector health expenditure	Prepaid and risk-pooling plans as % of Private sector expenditure on health	General government expenditure on health per capita at exchange rate	General government health expenditure as a % of general government expenditure	External resources on health as a % of Total expenditure on health
1998	5.5	26.1	73.9	95.0	2.4	4	7.1	13.1
1999	5.4	29.1	70.9	94.8	3.4	5	5.4	13.8
2000	4.3	33.5	66.5	92.7	5.1	6	4.2	16.2
2001	5.3	31.4	68.6	91.4	6.5	6	3.2	5.6
2002	5.0	25.6	74.4	90.4	6.7	5	3.1	6.1
2003	5.0	25.5	74.5	91.2	6.7	6	3.2	5.3

* Out-of-pocket payment.

Source: WHO (2005), (2006).

With high incidence of poverty and predominance of out of pocket (OOP) payments, households, especially the poor, are likely to be impoverished. The same picture is seen with educational funding in Nigeria. The poor are largely suffering from declines in government funding on social services and human capital sectors. This hampers developmental efforts of the government over the years. We argue therefore, that if the government is to achieve the process of development, there is great need for developmental efforts and initiatives to be directed at the poor, the marginalized especially those who live at the margins of the society.

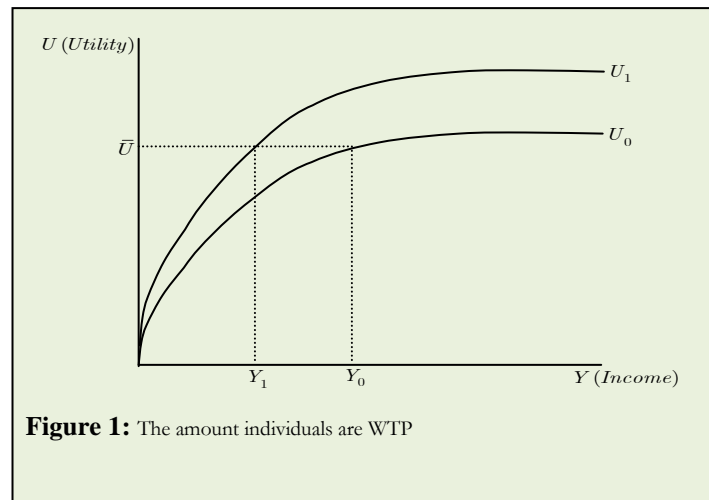
From Table 1, the predominance of out-of-pocket health financing makes it difficult for the poor to access quality health care services at the point of utilization. It has been observed that such households resort to orthodox health care centres only when the condition of illness has deteriorated. This further increase the real cost of treatment (Ataguba, et al. 2007). This is because poor households may not be able to access health care services as their level of income is low and they are even more prone to diseases.

As a result of this, the paper explores the possibility of households paying for informal health care insurance through the use of agricultural commodities. This we believed is likely to increase rural households' access to quality care.

III Theoretical framework

The theory of contingent valuation is closely related to the theory of consumer demand. The maximum amount an individual is willing to pay gives the value an individual places on the good under consideration and the reservation price for the good (Ataguba, et al. 2007). This amount is assumed to be additive across individuals within a certain household and community.

If we assume individuals to be risk averse with respect to income in demanding health care, and employing the utility income mapping, also assuming that utility or well-being of an individual is dependent on income and health, the amount an individual will be willing to pay for an improvement in health or in this case, the amount to be paid into the community insurance scheme, will be the amount of income the individual will be willing to part with still leaving the individual on the same level of utility or well-being as before the payment.



The maximum amount individuals are WTP for the scheme to improve their health status (Utility) as shown in Figure 1 is defined as the gap between Y_0 and Y_1 measured as $Y_0 - Y_1$ where the curve U_0 denotes the original level of health status and U_1 denotes the improvement in health status. It can be immediately observed that the income level at an improved state of health is lower ($Y_1 < Y_0$) due to the payment, though the individual still maintains the same level of utility denoted by \bar{U} on an improved health state. Health is not a good traded on the market as other commodities (Johannesson, 1996), one cannot obtain valuations of WTP directly hence the use of the contingent valuation methodology (CVM) to value how much households are willing to pay for the scheme and their willingness to participate in the proposed scheme.

The methodology of contingent valuation has been used to value willingness of households and individuals to pay for community health insurance schemes. Some of the recent studies include Dong et al. (2003a; 2003b; 2004a; 2004b; 2005) in Burkina Faso estimating WTP for community-based insurance, comparing gender effects for a community-based health insurance scheme, and analysing the differences in WTP of household heads for community-based health insurance premiums; Binam et al. (2004) in rural Cameroon valuing individuals' WTP for community prepayment scheme; Asenso-Okyere et al. (1997) using the large informal sector of Ghana to value WTP for health insurance; Mathiyazhagan (1998) in rural India valuing the willingness of rural households to pay for community health insurance arrangements through community involvement and participation; Jiang et al. (2004) in China estimating the willingness to pay for Rural Cooperative Medical Scheme (RCMS); Asgary et al. (2004) in Iran estimating rural household's WTP for health insurance; and Asfaw & von Braun (2004) investigating into the plausibility of community health insurance on poor rural households of Ethiopia.

However, these studies have used monetary terms as the method of payment for the scheme. This paper, however, explores the possibility of use of commodities because the rural population in Nigeria is predominantly agrarian. Hence they can afford to pay with commodities they have rather than through direct monetary terms which may likely prove difficult for them. This is because of the importance of health for poor rural households. Health is one of the assets that its supply is an especially important input into their production process.

IV Method

The study population for the research is rural households in Nsukka Local Government Area (LGA) of Enugu State of Nigeria with a population of 309,633 (NBS, 2007). Nsukka LGA is located in the northern part of Enugu State, south-eastern Nigeria. It consists of 15 communities: Anuka, Okutu,

Ibagwa-agu, Okpuje, Ibagwa-ani, Okpaligbo, Obukpa, Alor-uno, Edem, Obimo, Lejja, Ede-oballa, Opi, Ehalumona and, Nsukka. The choice of the study area is purposively based on the researcher's prior knowledge and familiarity, which according to [Deaton \(1997\)](#), enhances the accuracy of the data to be obtained, at least to a certain degree, the econometric estimates obtained thereof. It also strengthens the efficiency of the statistical inferences to be drawn about the study population. The study is purely a cross-sectional design.

Box 1: CVM Scenario

Most of the time when people fall sick, they tend to adopt various ways of coping with such an event this includes selling off personal belongings like animals, electronic gadgets, and if intense, land and landed property. Sometimes also, households tend to resort to borrow money from their neighbours, the church or religious organization or friends. This is because there is always a desire to get better again and if possible, quickly. If the individual or household fails in obtaining financial help, often times the sick individual has no option than to remain in the state and begin to deteriorate. Others decide at this point to go for cheaper alternatives, which might not be efficacious such as the use of traditional healers and medical practitioners. The scenario is also worse if the family finally obtains financial assistance only to discover at that point that the sick individual has died.

With the nature of out-of-pocket health care financing and the increasing burden of diseases facing the rural poor in Nigeria, a [hypothetical¹] non-governmental organisation (NGO) is proposing a community health pre-payment scheme to the rural dwellers. The scheme, which will have designated public health centres as points of utilization will be managed by the community. Only those who contribute into the scheme receive benefits.

To be eligible, a household is expected to pay a specified amount (premium) quarterly for a year to be able to receive health services for the period of a year. Once a member of a household (usually, household head²) has paid into the scheme, all household members will be given a membership card that identifies them with all personal information and the same membership number for the household which then entitles them to benefits that include consultations, diagnosis and laboratory tests, maternity, antenatal and postnatal care, family planning, cost of prescribed drugs under the Essential Drugs List (EDL), minor accidents, treatment of snake bites, cost of in-patient days for up to 30 days for any member of the household, minor surgeries such as appendectomy and caesarean sections but excludes heavy cost treatment such as plastic surgery at any of the designated public health centres. Any other services not covered by the scheme will be borne by the household. The main idea is to cover the basic health care needs of the rural community, which include malaria and typhoid fever, tuberculosis, and diarrhoea.

A two-stage selection procedure was used to select the sample of 380 households for the administration of an interviewer-administered questionnaire. The first stage randomly selects 5 out of the 15 communities namely: Obukpa, Edem, Nsukka, Ibagwa-Ani and Ehalumona. From these 5 communities, the Federal Office of Statistics (FOS) now National Bureau of Statistics (NBS) enumeration-listing booklet was used to select 4 Enumeration Areas (EAs) from each of the 5 communities. In the second stage, a simple systematic random sampling technique was used to select 19 households from each of the EAs.

¹ The term hypothetical is used to signify the contingent nature of the market construct.

² Here, household head is the adult individual who is directly responsible for the financial decision of the household

The sample of households was appropriately weighted in analysis using the inverse probability weighting method which denotes the inverse of the probability that the observation is included in the analysis due the chosen sample design³. Under the method, each household selected from each enumeration area (EA) is weighted to make it representative of the entire EA such that the sum of the weights for each EA should equal the approximate number of households in that EA.

Information elicited from rural household heads includes information on health variables, socio-economic characteristics, environmental and dwelling characteristics, and the WTP question⁴. Protesters are identified as respondents who do not provide a positive response to the valuation question.

The questionnaire was administered to household heads in the local language (Ibo) of the community by trained enumerators. It is divided up into two broad sections. The first section comprises questions on general household and personal information including demographic characteristics, health, assets, housing and wealth information and willingness of community participation. The second section which is the crux of the questionnaire administers the contingent valuation (CV) question after presenting to the respondent a description of the proposed hypothetical scheme as contained in Box 1. The CV question simply asks the respondent (household) if there is an option of paying or contributing to the scheme using commodities if they are willing to make contributions. They are further asked to list the quantities of agricultural commodities they can afford to contribute quarterly. These commodities are further cost to obtain their monetary equivalence.

The OLS estimation technique is used to estimate the valuation equation and to obtain the factors that affect household's WTP. Let Y_2 represent the monetary equivalence from the WTP question. Let also z represent the vector of covariates (socio-economic and health characteristics, etc.) on the respondent generated through the questionnaire and Y_1 denote a dichotomous variable which assumes the value of unity if we have information pertaining to the respondent's true WTP and 0 if otherwise. We specify the willingness to pay or valuation model using the Ordinary Least Squares (OLS) method of estimation as:

$$E(\ln Y_{2i} \mid z_i, Y_{1i} = 1) = z_i' \beta \quad (1)$$

Estimating the parameters of the valuation equation with any of the standard econometric software, in this case, Stata 9.2, we obtain the mean and median WTP as shown in Equation 2 and Equation 3. This is because of the lognormal distribution of the variable Y_2 with parameters $z' \beta$ and σ (see [Strazzer et al., 2003](#)).

$$\text{Mean} = E(Y_2) = \exp(z' \beta + \sigma^2/2) \quad (2)$$

$$\text{Median} = \exp(z' \beta) \quad (3)$$

Where σ is the standard error of the estimate.

For analyses, wealth was categorized into three as shown in Table 2 and is used as a categorical variable.

³ In stata, this is implemented using the `aweight` option.

⁴ See Table 3 for description of the variables elicited.

Table 2: Description of the variables used in analysis

Variable	Definition	Mean/proportions
Male	Gender variable 1 = male and 0, otherwise	0.63
Educ	Highest attained level of formal education 1 = no schooling; 2 = primary school; 3 = secondary school and 4 = tertiary schooling	(1): 42.7% (2): 34.3% (3): 14.6% (4): 8.4%
Knowinsurance	Knowledge of what health insurance or any form of insurance is all about or the basic concept of insurance 1 = know and 0, otherwise	0.11
Floormaterial	Nature of floor material 1 = cement/tiles/concrete and 0, otherwise	0.82
Toilet	Ownership of toilet facility 1 = own and 0, otherwise	0.46
Bathroom	Ownership of bathroom 1 = own and 0, otherwise	0.96
Numrooms	The total number of rooms in the occupied building excluding the living/dining room, kitchen, toilets and bathrooms	4.13
Wealth	Proxy measure for income level of households. This includes considering durable assets, household building materials, ownership of livestock, economic trees, etc. which are further converted into their current market value using current market prices. The market prices used were obtained as the amount it will cost the household to sell the items.	N121,714.20
Wealth1	Wealth category 1 – 1 if Wealth < N60,000 and 0, otherwise	36%
Wealth2	Wealth category 2 – 1 if Wealth N60,000 – N120,000 and 0, otherwise	24%
Wealth3	Wealth category 3 – 1 if Wealth > N120,000 and 0, otherwise	40%
Age	The Age of the respondent at the last birthday (in years)	51.69
HHsize	Total number of household members living together usually as a nuclear family unit (Household size)	6.10
Sick	Indicating whether or not any household member fell ill in the past two weeks prior to interview 1 = sick and 0, otherwise	0.40
WTP	Dichotomous variable indicating whether or not the individual accepts to contribute 1 = accept and 0, otherwise	0.80
Employed	Whether the respondent is employed or not both in the formal and informal sector. 1 = employed and 0, otherwise	0.99
Participation	Indicating whether or not the respondent or any household member has participated in any health insurance scheme before or are currently enrolled in one 1 = participated/participating and 0, otherwise	0.03
Hstate	The general state of health of the respondent at the time of interview 1 = Poor; 2 = Fair; 3 = Good; 4 = Very good; 5 = Excellent	(1): 6.8% (2): 33% (3): 46.6% (4): 13.6% (5): 0%
Meanstreat	The general and often 'usual' means of seeking treatment when any member of the household falls ill 1 = orthodox and 0, otherwise	0.55
QHcentre	The general rating of the quality of the health centres nearest to the respondent 1 = Poor; 2 = Fair; 3 = Good; 4 = Very good; 5 = Excellent	(1): 4.21% (2): 36.57% (3): 46.6% (4): 12.62% (5): 0%
Dwelling	Nature of dwelling defined by the building and construction materials used 1 = cement/concrete and 0, otherwise	0.85
Trust	Indicating the level of confidence in any community trust fund or where funds are pooled together and managed by the community 1 = Highly distrust; 2 = Distrust; 3 = Trust; 4 = Highly trust	(1): 3.6% (2): 18.4% (3): 43.7% (4): 34.3%
T_amt	Amount spent on treatment of any household member during the past four weeks. This includes the quantifiable indirect and direct costs measured in Naira.	N763.35
B_amt	Amount borrowed for the treatment of any household member during the past four weeks where any household member has fallen sick. This also includes the monetary worth (measured in Naira) of sold items.	N666.36
Distance	The distance from the household to the nearest health centre measured to the nearest Kilometres.	3.33

Source: Author's calculation

V Descriptive Statistics

Table 2 presents the description and summary statistics of the sample population. The average household size is 6 members. Most of the household heads interviewed (99%) are employed in the formal sector by the Local Government Authority (though, mainly menial labourers and clerks) or the informal sector as craftsmen, petty-traders and farmers. Most of the respondents were engaged in one form of farming or the other as a form of supplement or as a full time occupation. This limited the direct observation of income variable. A proxy measure of wealth was however adopted as suggested by Fonta (2006). On the average, ₦121,714.20 (US\$936.26)⁵ is household's wealth per annum or ₦10,142.85 per month. 63% of the sample is males. Most of the households headed by females are as a result of widowhood.

The average age of household head that participated in the survey is about 52 years. Over 77% of the respondents have not had more than 7 years of formal education. This also characterizes the rural population in Nigeria. About 78% of the respondents had confidence in the proposed scheme. The cost of treatment on average is ₦763 (\$5.87) across the whole sample of respondents. The amount borrowed for treatment including money got from the sale of valuable assets and property averaged across the entire respondents is about ₦666. This makes up over 87% of the amount spent on treatment averaged across the total respondents. Over half (60.2%) of the household heads reported health status above 'Good' as at the time of interview. Similarly, slightly over half (55%) of the respondents seek health care from orthodox⁶ health care providers while 45% patronize mostly patent medicine stores. The knowledge of health insurance or any other form of insurance is quite low among the sample of respondents as only about 11% of the respondents claimed knowledge of what insurance is all about.

Table 3: Distribution and categorization of responses

Category	No. of obs.	%
Valid responses	246	64.7
Protest responses	63	16.6
Refusal	71	18.7
TOTAL	380	100.0

The distribution of responses is shown in Table 3. About 18.7% of the respondents are categorized as refusals. These are individuals who could not be interviewed either because they were not available at the time of interview or declined being interviewed. However, attempts were made to reduce the refusals through the use of call-back cards for those that were not available for interview. Protest responses are individuals that declined payment through the use of commodities. While valid responses are individuals that accepted payment and provided positive response to the valuation question.

VI Empirical Results and Discussion

The willingness to pay results for the community insurance scheme is presented in Table 4. The factors that determine how much households are willing to pay include gender, household size, health status, quality of health care centre, confidence in the proposed scheme, number of dwelling rooms, distance to the nearest health care centre and wealth. Wealthier households are WTP higher amounts than households that are less wealthy. This is usually the case of income or wealth being a determinant of the quantity demanded of a commodity. In this case, the amount households are

⁵ As at the time of survey, the exchange rate stood at US\$1 \cong ₦130.

⁶ Orthodox providers are categorized as clinics, maternity centres, dispensary, and hospitals. The unorthodox providers are categorized as patent medicine stores, traditional healers and herbalists, etc.

WTP is an increasing function of their ability to pay. Male headed households are WTP higher amounts than female headed households. This could be linked to the traditional roles of men in the community. Men have been traditionally regarded as the head of households and are therefore charged with the responsibility of catering for the family financially.

Table 4: Willingness to Pay Equation

VALUATION EQUATION		
Parameter	OLS	
	Estimate	S. Error
Constant	7.064	0.368***
Male	0.195	0.085**
HHsize	-0.027	0.013**
Educ1	-0.083	0.164
Educ2	0.118	0.162
Educ3	-0.148	0.193
Educ4		
Hstate1	0.083	0.170
Hstate2		
Hstate3	0.206	0.108*
Hstate4	0.168	0.148
Qhcentre1		
Qhcentre2	-0.855	0.293***
Qhcentre3	-0.610	0.299**
Qhcentre4	-0.633	0.315**
Trust1	-0.044	0.255
Trust2	-0.166	0.124
Trust3	-0.210	0.098**
Trust4		
Numrooms	0.053	0.027*
Ldistance	0.058	0.020***
Wealth1	-0.166	0.101*
Wealth2	-0.196	0.099**
Wealth3		
Adj. R-Squared	0.30	

*, **, *** Significant at 10%, 5% and 1% levels respectively.

Households with larger sizes are also WTP higher amounts than households with relatively smaller size. This is likely to be as a result of the huge financial burden faced by households when they seek health care. Household that perceives the quality of health care centres nearest to them as poor are willing to pay more than households that perceive the quality to be good. Household heads that have greater trust and confidence in the proposed scheme are more WTP higher amounts than those that have low confidence in the scheme. Households that have to travel long distances to access health care are WTP higher amounts than their counterparts that live close to health care centres.

Table 5: Summary of estimated mean quarterly WTP amount (in Naira)

	OBS*	Mean	CI-Mean	Median	CI-Median
(1) All (raw observation)	309	788.09	703.3-872.9	550.00	488.4-700.0
(2) OLS	246	1010.48	956.2-1064.7	852.03	806.3-897.8

* Number of observations.

The mean and median WTP amount is contained in Table 5. This was compared with the raw median and mean⁷ obtained from the whole available observations. The associated confidence intervals (CI) are also presented. The mean and median quarterly WTP amount for the scheme were computed as N1010 (= \$7.77) and N852 (= \$6.55). This amount per quarter is reasonable, though small compared with N763 (= \$5.87) per month spent on treatment per household as has also been observed by [Asfaw & von Braun \(2004\)](#). This, therefore, requires that additional funding is sourced for financing health care payments in the form of government assistance.

Therefore, these schemes will impact on the poor. Since the rural poor do not have access to formal insurance schemes, these community contributory schemes are likely to be a start-off. Funds can be pooled together when the households can afford payments then payment for health care services will become predictable. In the short-run, the rural poor will have access to quality health care services that will be affordable and this will eventually reduce the level of disease burden among the poor. In the long-run, the poor will be able to save and invest out of their meagre resources that will help them gradually opt out of poverty and this will lead to gradual growth and development of the country.

These poor rural dwellers in Nigeria often have relatively low level of earnings tied to agriculture and other small businesses and they are more prone to ill-health conditions because of the nature of their environment. Child birth in these poor communities, for example, is usually attended to by unqualified birth attendants due to the gross unavailability of trained nurses or doctors. While to an extent, there are no incentives in place by the government to keep medical personnel in the rural areas, the rural communities resort to making use of the available options. These also contribute to the poor level of health in rural areas that makes health care expenditure high.

The policy option by the government to bring health care close to its population through the National Health Insurance Scheme (NHIS) is very important. The problem, however, is the nature of implementation pursued by the government. This requires that those in formal employment be covered first before those in the informal sector can be brought into the scheme. While it is easier and accessible to get to those in formal employment, the large volume of informal workers will still suggest the need for urgent attention to cater for them. The value of government funding on health has not also fared any better over the past years. This lack of commitment has called for means of protecting the poor from the high cost of medical payments and the increasing level of out-of-pocket payments. This is likely to retard and even hampers developmental efforts put in place by the government.

Acknowledgements

This work was carried out with financial and scientific support from the Poverty and Economic Policy (PEP) Research Network, which is financed by the Australian Agency for International Development (AusAID) and the Government of Canada through the International Development Research Centre (IDRC) and the Canadian International Development Agency (CIDA). The field work exercise was funded by the Swedish International Cooperation and Development Agency (SIDA). The author also acknowledges the comments made by Profs. Jean-Yves Duclos, Steve Younger and Habiba Djebbari, Araar Abdelkrim and other discussants and members of the PEP network that helped to shape the work. The usual disclaimer applies.

⁷ The raw mean & median were computed by imputing zero values for the protest respondents.

References

- Asenso-Okyere, W. K., Osei-Akoto, I., Anum, A. and Appiah, E. N. (1997), 'Willingness to pay for health insurance in a developing economy. A pilot study of the informal sector of Ghana using contingent valuation' *Health Policy*, **42**(1997): 223-237.
- Asfaw, A. and von Braun, J. (2004), 'Can community health insurance schemes shield the poor against the downside health effects of economic reforms? The case of rural Ethiopia', *Health Policy*, **70**(2004): 97-108.
- Asgary, A., Willis, K., Taghavei, A. A. and Rafeian, M. (2004), 'Estimating rural households' willingness to pay for health insurance' *European Journal of Health Economics*, **5**: 209-215.
- Ataguba, J. E. (2007), 'An estimation of the willingness to pay for community healthcare insurance scheme in rural Nigeria' A report presented during the Sixth PEP Research Network General Meeting June 14-16, 2007 Lima, Peru. <http://www.pep-net.org/NEW-PEP/HTML/Meetings/Fichiers%20pdf/pmma610-Ataguba.pdf>.
- Binam, J. N., Nkama, A. and Nkendah, R. (2004). *Estimating the willingness to pay for community health prepayment schemes in rural areas: a case of the use of contingent valuation surveys in centre Cameroon*. Retrieved: August 12, 2005, from: <http://www.csaе.ox.ac.uk/conferences/2004-GPRaHDiA/papers/4h-Binam-CSAE2004.pdf>.
- Bitran, R. and Giedion, U. (2002), *Waivers and exemptions for health services in developing countries*, World Bank, Washington D.C.
- Deaton, A. (1997), *The Analysis of Household Surveys*, World Bank, Baltimore.
- Dong, H., Kouyate, B., Cairns, J., Mugisha, F. and Sauerborn, R. (2003a), 'Willingness-to-pay for community-based insurance in Burkina Faso' *Health Economics*, **12**(2003): 849-862.
- Dong, H., Kouyate, B., Snow, R., Mugisha, F. and Saureborn, R. (2003b), 'Gender effect on willingness-to-pay for community-based insurance in Burkina Faso' *Health Policy*, **64**(2003): 153-162.
- Dong, H., Mugisha, F., Gbangou, A., Kouyate, B. and Sauerborn, R. (2004a), 'The feasibility of community-based health insurance in Burkina Faso' *Health Policy*, **69**(2004): 45-53.
- Dong, H., Kouyate, B., Cairns, J. and Saurborn, R. (2004b), 'Differential willingness of household heads to pay community-based health insurance premia for themselves and other household members' *Health Policy and Planning*, **19**(2): 120-126.
- Dong, H., Kouyate, B., Cairns, J. and Saurborn, R. (2005), 'Inequalities in willingness-to-pay for community-based health insurance' *Health Policy* **72**(2005): 149-156.
- Dror, D. and Preker, A. S., eds. (2002). *Social Re-Insurance: A new Approach to Sustainable Community Health Financing*. Washington: World Bank/ILO. Available from: http://www-wds.worldbank.org/servlet/WDSContentServer/WDSP/IB/2002/11/01/000094946_02102204203143/Rendered/PDF/multi0page.pdf, Accessed [December 13, 2006].
- Fonta W M. (2006), *Valuation of Community-based Financing of Environmental Projects: A Case Study of Malaria Control in Bambalang, Cameroon*, PhD Thesis, Environmental Economic Unit,
- Jiang, Y., Asfaw, A. and von Braun, J. (2004), 'Performance of existing rural cooperative medical scheme and willingness to pay for the improved scheme' Available from: <http://www.tropentag.de/2003/abstracts/full/104.pdf>, Accessed [December 12, 2006].
- Johannesson, M. (1996), 'A note on the relationship between ex ante and expected willingness to pay for health care' *Social Science and Medicine*, **42**(3): 305-311.
- Mathiyazhagan, K. (1998), 'Willingness to pay for rural health insurance through community participation in India', *International Journal of Health Planning and Management*, **13**: 47-67.
- NBS (2007), Federal Republic of Nigeria: 2006 Population Census, National Bureau of Statistics.
- OECD/WHO (2003), *DAC Guidelines and Reference Series: Poverty and health*, Organisation for economic Co-operation and Development/ World Health Organisation, Paris.

- Strazzera, E., Genius, M., Scarpa, R., and Hutchinson, G. (2003), 'The Effect of Protest Votes on the Estimates of WTP for Use Values of Recreational Sites', *Environmental and Resource Economics* **25**:461-476.
- Whitehead, M., Dahigren, G. and Evans, T. (2001), 'Equity and health sector reforms: can low-income countries escape the medical poverty trap?', *The Lancet*, **358**: 833-836.
- WHO (2002), *WHO country cooperation strategy: Federal Republic of Nigeria 2002-2007*, World Health Organisation, Brazzaville.
- WHO (2005), *The World Health Report 2005: Make Every Mother and Child Count*, World Health Organisation, Geneva.
- WHO (2006), *The World Health Report 2006: Working Together for Health*, World Health Organisation, Geneva.
- World Bank (1987), *Financing Health Care: an Agenda for Reform*, The World Bank, Washington D. C.